

IP series

Pushbutton switches for harsh environments •
bushing Ø 12 mm • momentary



DISTINCTIVE FEATURES

- Illuminated or non-illuminated
- Tactile feedback
- Wide variety of configurations
- Flat round actuator for optional marking
- Sealed to IP67 and IP69K



ENVIRONMENTAL SPECIFICATIONS

- Front panel sealing: IP67 according to IEC 60529
IP69K according to DIN 40050-9 (non-illuminated) with cap U5125
- Shock resistance: 100 g according to IEC 512-4, test 6c
- Vibration resistance: 10-500Hz - 10 g according to IEC 512-4, test 6d
- Salt spray: IEC 512-6, test 11f
- Robustness (non-illuminated): IK06 according to EN 62262 (1 joule)
- Operating temperature: -40 °C to +85 °C (-40 °F to +185 °F)



ELECTRICAL SPECIFICATIONS

- Max. current/voltage rating with resistive load (gold plated silver contacts):
5 A 28 VDC, 70,000 cycles (only function 3)
0.2 A 48 VDC, 500,000 cycles
0.5 A 48 VAC, 500,000 cycles
For W terminals, current has to be limited to 400 mA.
- Initial contact resistance: 100 mΩ max.
- Insulation resistance: 1 GΩ min. at 500 VDC
- Dielectric strength: 1,500 Vrms
- Contact bounce: 10 ms



LED COMPONENT SPECIFICATIONS

LED color	Forward current	Typ. forward voltage	Max. forward voltage
Super red (LOS)	20 mA	2.1 V	2.3 V
Yellow (LOY)	20 mA	2.1 V	2.3 V
Green (LOG)	20 mA	2.1 V	2.3 V
Blue (LOB)	20 mA	3.2 V	3.8 V
White (LOW)	20 mA	3.35 V	4.25 V
Red/green (LSG)	20 mA	Red: 1.95 V / green: 2.1 V	2.5 V
Yellow/green (LYG)	20 mA	Yellow: 2 V / green: 2.1 V	2.5 V

A resistor must be series-connected by the user.
Resistor value = $\frac{\text{supply voltage} - \text{LED forward voltage}}{\text{LED forward current}}$

The company reserves the right to change specifications without notice.

4006-022-002

shunto@126.com

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GENERAL SPECIFICATIONS

- Panel thickness: 1.5 mm (.059) min.
4 mm (.157 max.)
- Total travel:
Function 3: 1.7 mm (.067) ± 0.3 mm (0.012)
Function 5: 1.3 mm (.051) ± 0.3 mm (0.012)
- Typical operating force: 4 N ± 2 N
- Low level/mech. life: 1,000,000 cycles
- Torque: 1.5 Nm max. applied to nut
- Soldering: 320 °C (608 °F) max. for 3 sec.

MATERIALS

- Case: thermoplastic UL94-V0
- Actuator: polyamide 6/6
- Bushing/bezel: zinc die-cast (zamak), black painted
- Contacts: - silver, gold plated (std)
- brass, gold plated (for option 104)
- Output wires (flying lead terminals):
F version: AWG20, section 0.6 mm²
W version: AWG24, section 0.23 mm²
- LED wires:
F version: AWG26, section 0.12 mm²
W version: AWG24, section 0.23 mm²
- Lens: polycarbonate
- Terminal seal: epoxy

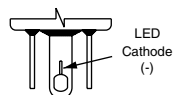
AGENCY APPROVAL



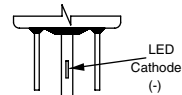
2 A 125 VAC/250 VAC
File E83438
See following pages.

TERMINALS

ILLUMINATED MODELS

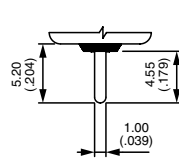


Solder lug S

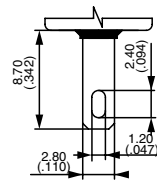


Straight P

NON-ILLUMINATED MODELS



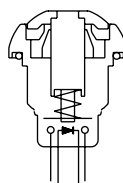
Straight P



Quick-connect Z1

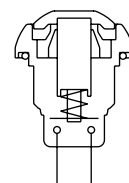
ELECTRICAL FUNCTIONS

ILLUMINATED MODELS

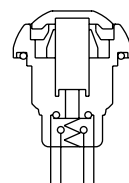


Function 3 (NO)

NON-ILLUMINATED MODELS



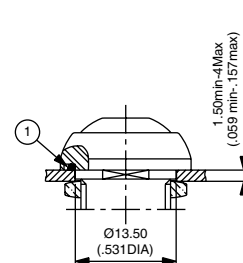
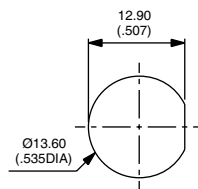
Function 3 (NO)



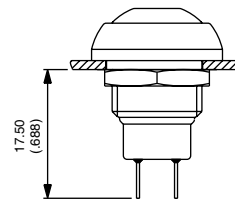
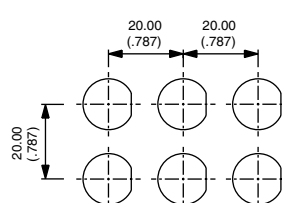
Function 5 (NC/NO)

MOUNTING

PANEL CUT-OUT



MATRIX MOUNTING - BACK OF PANEL SPACE REQUIREMENT

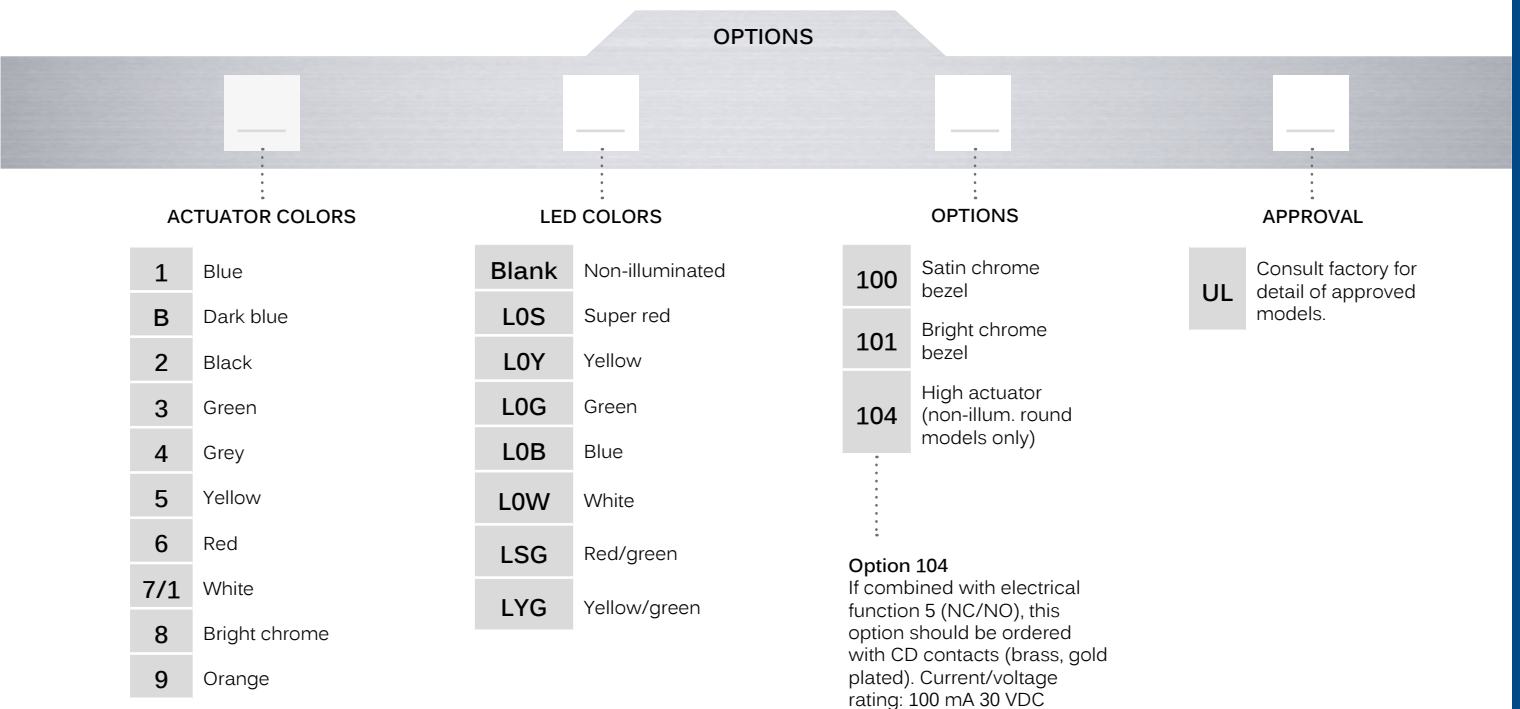
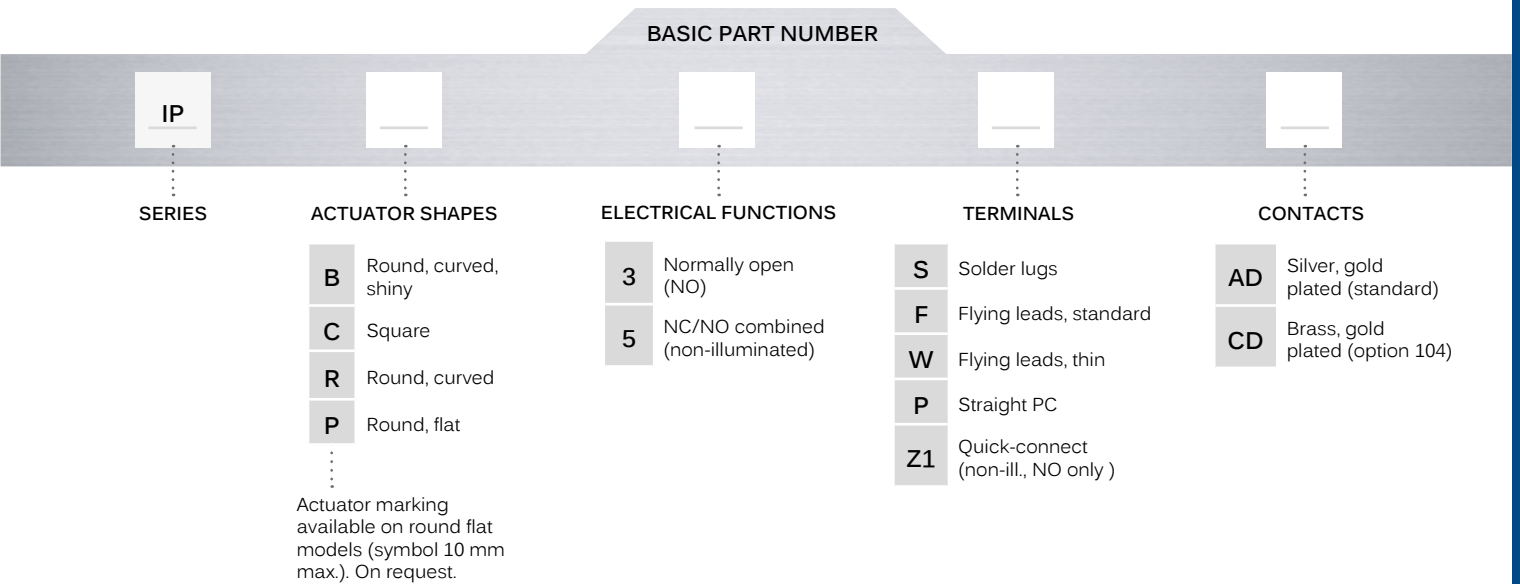


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BUILD YOUR PART NUMBER



ABOUT THIS SERIES

On the following pages, you will find successively basic part numbers of switches and options in the same order as in above chart.

- Notice:** please note that not all combinations of above numbers are available. Refer to the following pages for further information.
- A sealing boot** is available to protect the switches against frost and sand. See "Sealing Boots" section of website.
- Mounting accessories:** Standard hardware supplied: 1 hex nut 14 mm (.551) across flats and 1 O-ring. Hex nut part number U166.

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SQUARE - ILLUMINATED SOLDER LUG TERMINALS



IPC3SAD



Normally Open

Also available with straight PC terminals: **IPC3PAD**
LED color is indicated by the bottom of the switch.

SQUARE - ILLUMINATED FLYING LEAD TERMINALS



IPC3FAD



Normally Open

For THIN flying leads, replace F with W.
Wire colors: black: NO contact, red: LED anode(+), blue: LED cathode(-)
Shown with standard flying lead terminals.

SQUARE - NON ILLUMINATED SOLDER LUG TERMINALS



IPC3SAD



Normally Open

IPC5SAD



Normally Open

Also available with straight PC terminals: **IPC3PAD** (NO) or **IPC5PAD** (NC/NO)
and quick-connect terminals: **IPC3Z1AD** (NO only)

SQUARE - NON ILLUMINATED FLYING LEAD TERMINALS



IPC3FAD



Normally Open

IPC5FAD

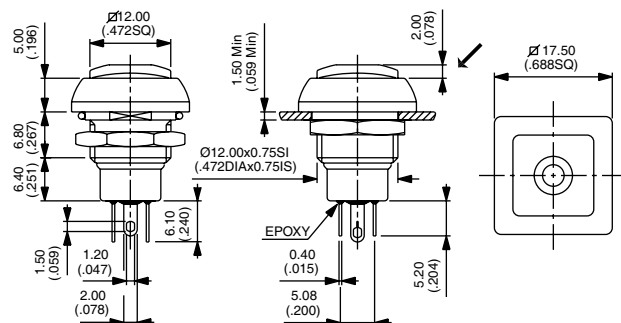


NC/NO combined

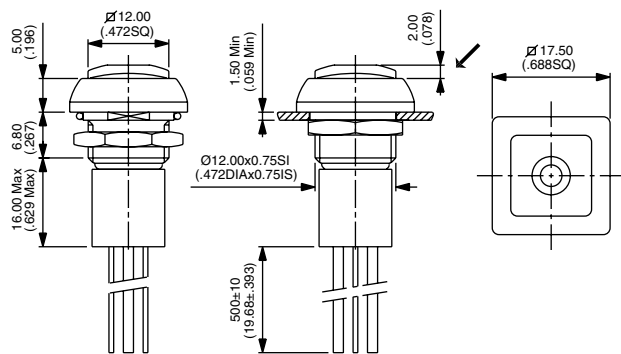
For THIN flying leads, replace F with W.
Wire colors (NC/NO): black: NO, blue: NC.
Shown with standard flying lead terminals.

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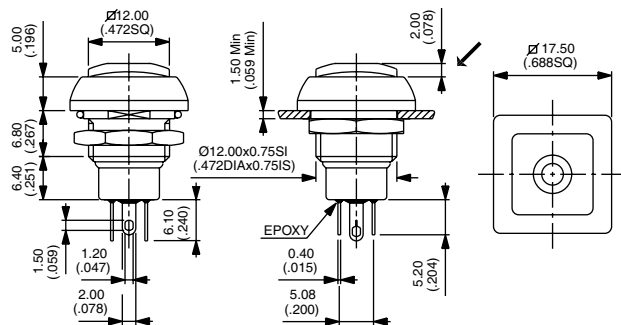
→ FLAT



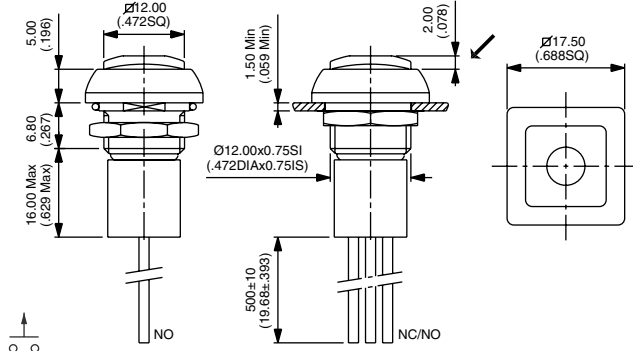
→ FLAT



→ FLAT



→ FLAT



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ROUND - ILLUMINATED SOLDER LUG TERMINALS



IPR3SAD



Normally Open

Also available with straight PC terminals: **IPR3PAD**
LED colour is indicated by the bottom of the switch.

ROUND - ILLUMINATED FLYING LEAD TERMINALS



IPR3FAD



Normally Open

For THIN flying leads, replace F with W.
Wire colors: black: NO contact, red: LED anode(+), blue: LED cathode(-)
Shown with standard flying lead terminals.

ROUND - NON ILLUMINATED SOLDER LUG TERMINALS



Curved actuator, NO	IPR3SAD	
Curved actuator, NC/NO	IPR5SAD	
Flat actuator, NO	IPP3SAD	
Flat actuator, NC/NO	IPP5SAD	

Also available with straight PC terminals: **IPC3PAD** (NO) or **IPC5PAD** (NC/NO)
and quick-connect terminals: **IPC3Z1AD** (NO only)

ROUND - NON ILLUMINATED FLYING LEAD TERMINALS

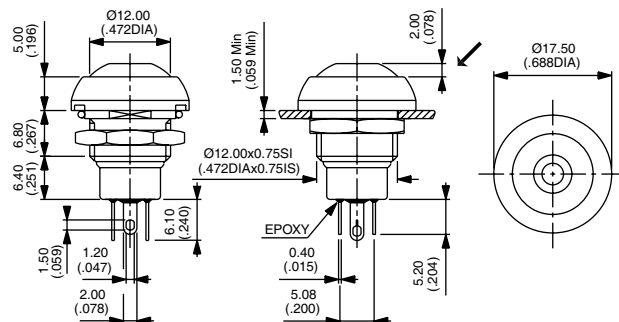


Curved actuator, NO	IPR3FAD	
Curved actuator, NC/NO	IPR5FAD	
Flat actuator, NO	IPP3FAD	
Flat actuator, NC/NO	IPP5FAD	

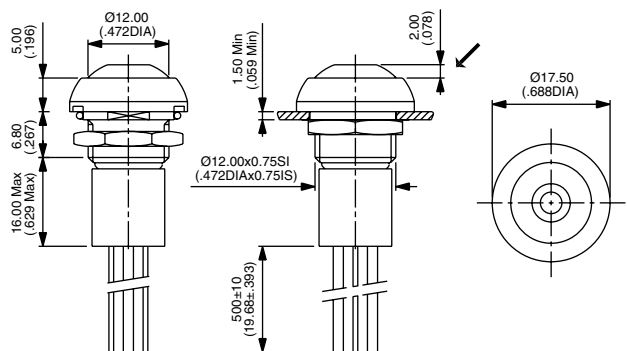
For THIN flying leads, replace F with W.
Wire colors (NC/NO): black: NO, blue: NC
Shown with standard flying lead terminals

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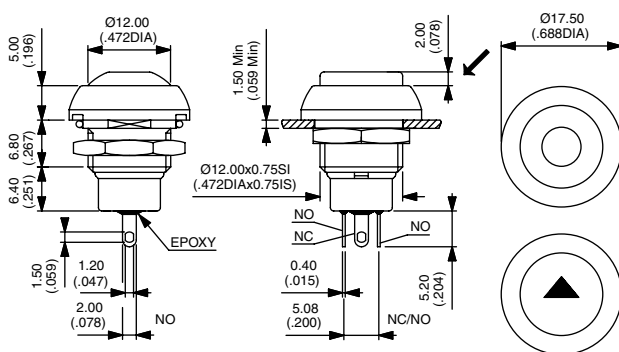
→ FLAT



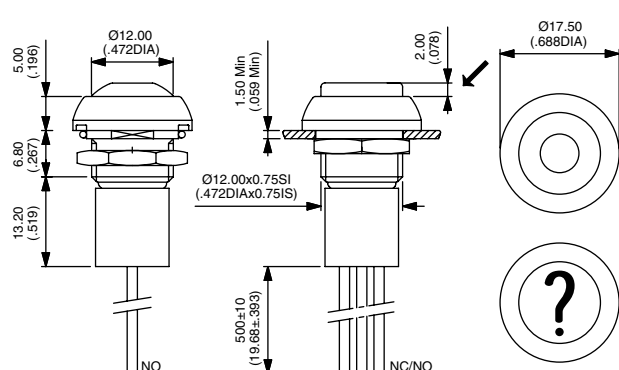
→ FLAT



→ FLAT



→ FLAT



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ACTUATOR COLORS



1	Blue	6	Red
B	Dark blue	7/1	White
2	Black	8	Bright chrome
3	Green	9	Orange
4	Grey	A	Satin chrome
5	Yellow		

LED COLORS

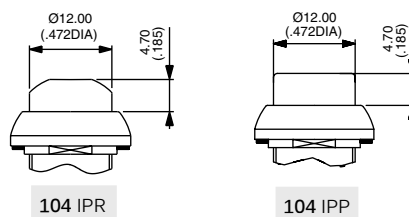


Blank	Non-illuminated
LOS	Super red
LOY	Yellow
LOG	Green
LOB	Blue
LOW	White
LSG	Red/green
LYG	Yellow/green

OPTIONS



100	Satin chrome bezel
101	Bright chrome bezel
104	High actuator - For round, non-illuminated only If combined with function 5 (NC/NO), order with CD contacts (instead of AD contacts).



AGENCY APPROVAL



UL

Consult factory for details of approved models. To order switches marked UL, complete above box with "UL".